

OKLAHOMA AGRICULTURAL EXPERIMENT STATION

DEPARTMENT OF ENTOMOLOGY

STILLWATER, OKLAHOMA

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BOLL WEEVIL

LIFE HISTORY IN CONNECTION WITH ESSENTIAL METHODS OF CONTROL

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The boll weevil can neither subsist or develop on any other plant grown in the State than cotton.

It passes the winter in the full grown stage which is a beetle. It can pass the winter in no other stage in this State.

It hibernates to some extent in cotton bolls. I have never found it in the cotton plants or on the cotton plants in hibernation any place, Oklahoma or elsewhere, neither have I known of others finding it hibernating on or in any other part of the plant other than bolls excepting in stored cotton seed.

About the time of the first killing frost, the adult weevils fly from the cotton fields seeking protection in such places as will furnish shelter from moisture especially, and also low temperature.

Immature weevils are easily destroyed by the freezing of the bolls, consequently development is discontinued as soon as the cotton plants are severely singed with frost.

The hibernating weevils begin to appear normally at the time when the young cotton plants are beginning to appear in the newly planted fields. These hibernating weevils do not all issue at once but continue to come forth until the month of July. The early issuing weevils feed on the tender young leaves of the plants and later on the developing squares.

In the developing squares and young bolls, the females deposit the eggs in punctures made by their beaks. A set of teeth is in the end of the beak.

The punctures made for the reception of the eggs are very similar to the punctures made in the squares by the weevils for food purposes.

Rarely more than one egg is deposited in one square.

When the weevils become numerous and the squares become scarce, the females will lay eggs in the developing bolls.

Often more than one egg is deposited in a single boll when the weevils are numerous and the bolls are scarce. As many as a dozen eggs may be deposited in a single boll.

The females may deposit as many as one hundred and forty eggs each.

The eggs hatch within two or three days.

The larva, grub or maggot as it may be called is footless and develops only in the square or boll and in a period of from seven to twelve days.

The pupa, or transitional stage of the larva to the adult, takes place in the cavern of the square or boll made by the larva in obtaining its food. The pupal stage requires from three to five days.

The total length of time requires therefore between two to three weeks.

The time required for a generation being about six weeks.

Three to four generations can develop in this State in one season.

The total progeny of one pair may amount to between four and five millions of boll weevils.

From a practical and scientific standpoint, we advise that cotton plants be destroyed one month before the occurrence of the first killing frost in the fall of the year. This brings about either a forced hibernation or death from starvation on the part of the boll weevils.

Experiments show that where 43% of the weevils can live over, under normal conditions of hibernation, only 3% can live over winter under this forced method of hibernation.

It matters not how the cotton plants are destroyed provided they are destroyed at the time above mentioned. They may be either plowed under, uprooted, piled and thus for a short time act as a trap in which the adults may collect, then as soon as the leaves are dry enough they may be burned thus destroying them. The roots and main stalks do not need to be consumed by fire. Enough heat will be generated by the burning of the leaves, under proper methods of burning, not only to destroy all weevils present but prevent further development.

The pasturing of cotton stalks is not advisable since a second growth, sometimes known as seppa cotton, develops near the base of the plant on which weevils can subsist along with the stock that may be using the cotton fields for pasture.

The next phase of procedure is proper preparation of a seed bed for the following crop of cotton. This depends largely upon local conditions and is well known to all county agents and practically all cotton growers.

Along with this consideration, is the planting of an early maturing variety of cotton and as early as local conditions will permit of a good stand that will develop rapidly.

All county agents and practically all cotton growers are familiar with the rapid development of cotton plant growth under proper methods of cultivation. One of the main things to be considered, of course, is frequent cultivation, thus maintaining a thorough soil mulch and smooth surface, the latter eliminating shade made by clods or other plants than cotton. The ground between the rows should be lower than the cotton rows thus aiding to a certain extent the accumulation of the fallen squares near the middle and their consequent exposure to sunlight which has a tendency to dry them before the young weevils can develop.